

**Structural FAC Meeting
Jekyll Island, GA**

2-3 December 2003

1. Participants:

Don Cook, Jacksonville District (Civil Works)
Danielle Hopwood, Fort Worth (Military)
Cyndi Riley, Little Rock District (Civil Works and Military)
Joyce Rudy, Transatlantic Center (Military)
Brian Scultheis, Jacksonville District (Civil Works)
Lori Taylor, St. Paul District (Civil Works)

2. CADD Symposium: Discussed possible themes for the CADD/GIS Symposium booth. A stone-age theme was discussed with the motto "CADD Standards...The Bedrock of the Corps." With this theme we could display fossilized drafting tools made out of old drafting tools and plaster. Cave paintings could be displayed in contrast to CADD drawings. The booth could be made to look like a cave using crinkled brown paper. This idea will be suggested to the other FACs for their approval.

3. Structural Level/Layer Tables for Autocad and MicroStation V8:

Problems Identified:

- Some levels need to be redefined so that they can be utilized in 3D modeling.
- The user needs more flexibility with regard to line styles, line weights and colors.
- Additional levels/layers are needed for civil works structures.
- There is no consistency with regard to how border sheet models are developed.

Recommendations:

- Because an unlimited number of level/layer names can be assigned both MicroStation V8 and Autocad (under previous versions, MicroStation was limited to 63 levels), a single level/layer table will be created. A matrix defining which levels are most commonly used by various project types will be included. The level/layer table will be sent

out to the structural POC for each district for comment.

- Seed files should be developed to reflect the various project types.
- Rather than assigning line styles, line weights and colors to each level/layer, “DEFAULT” symbology would be assigned. This way tools (such as NetSpex, the A/E/C Workspace, Details Library, etc.) could still be developed, but the user would have the flexibility to change the symbology if necessary to clarify the design.
- Levels would be established using a tiered system as follows:

Feature- Type-Material

The only required field would be the “Feature.” The other fields could be used at the user’s discretion, based on the complexity of design. Whether or not a level will need to be turned on or off will determine the need for extended level/layer names.

EXAMPLE: The level/layer name “S-WALL” could be used for a simple flood control structure. Likewise, when designing a project with multiple wall types, it may be necessary to use an expanded name such as “S-WALL-FULL” or “S-WALL-FULL-WOOD” in order to allow specific wall types to be turned on or off.

The STFAC will define as many feature “types” as possible, however, the user will be allowed to define their own four character feature type if the what they need does not exist. Four character material definitions will be provided and may be used with any applicable feature type.

- Material types currently identified are:

ALUM	Aluminum	Blue (1)
ASPH	Asphalt	
BRICK	Brick	
BRZE	Bronze	
CLAY	Clay	
CMUB	CMU Block	
CONC	Concrete	Yellow (4)
FIBR	Fiberglass	
FOAM	Styrofoam	
GALV	Galvanized Steel	Green (2)
VCX	PVC	
RUBR	Rubber	
SSTL	Stainless Steel	Green (2)
STEL	Steel	Green (2)
STON	Stone	

STUC
WOOD

Stucco
Wood

Orange (6)

- Additional levels were defined for the following Civil Works structural categories:

Armor
Bridges
Gates
Locks and Dams
Platforms
Specialty waterways structures
Signage

Additional levels and level categories will be added as identified during the review process.

- The following additions/clarifications to the Annotation levels will be submitted to the CADD Center for consideration:

G-ANNO-SYMB	Border and border text	G-ANNO-SYMB
G-ANNO-SYMB-AE LG	AE Logo	
G-ANNO-NPLT	Plot shape	
G-ANNO-TEXT-PROJ	Project-specific title block text	
G-ANNO-TEXT-DRWG	Drawing/sheet specific title block text	
G-ANNO-FRME	Neat image frame	
G-ANNO-SYMB-AXXX	Amendments*	
G-ANNO-SYMB-RXXX	Mods/change orders*	

“XXX” is used as a place holder. These fields would be user defined. For large jobs you could have a level for each amendment – user’s choice.

4. Other CADD Standard/Drawing Issues: The following are a list of issues and practices discussed by the participants.

- As a general rule, text should not be placed in model files.
- It would be helpful if all text, dimensions, and leader lines were placed using a consistent color. Red was suggested as the default, so that the text would stand out. What ever color is chosen, that color should only be used for text. The use of yellow for text causes a problem when drawings are utilized for Power Point presentations.

- The default color table delivered with MicroStation only has 16 clearly defined colors. MicroStation also delivers an Autocad color table with its software. The group recommends the Autocad color table be used as the default for MicroStation drawings. In addition to providing additional colors needed for presentation graphics (Power Point or GIS software), use of the same color table would make the two software packages visually consistent. This is important since many districts are using Autocad or a dual platform in order to fulfill customer requirements.
- Changes proposed by Steve Hutsell (SWF) to sheet file naming has been submitted to NIBS (they maintain the National CADD Standard). We should take a look at this to see if it works for everyone.
- Users want the two part section/detail bubble put back in the UDS (Uniform Drawing System which the A/E/C CADD Standard is based on). Being able to back reference to section cuts and details is important to our construction folks.
- Jacksonville District prints amended drawings on yellow paper (half-size prints). This works well to readily distinguish which drawings have been modified.
- Jacksonville uses what they refer to as a companion file in order to assist users in placing text and symbols at the correct scale. The companion file is attached to border model. That way the user can match text or copy symbols. They are always the proper size with relation to the border.
- Checking for compliance by symbology is flawed.
- We need to develop levels of compliance. For instance, are you compliant with levels, file naming, colors, symbology, etc?
- How do we enforce Standard compliance with AE firms?
- We need to develop or purchase tools that make it easier for the user to use the Standards than not.

5. Subject Matter Experts: The Center needs subject matter experts. The Center will refer inquires related to specific disciplines to the appropriate FAC chair. The FAC chair will identify and refer the user to the appropriate subject matter expert within their FAC.

6. National CADD Standard (NCS) Forum Registration: The A/E/C CADD Standard closely follows the NCS. It is important to get more Corps employees

to join the NCS Forum. Right now, the forum is primarily made up of architects from A/E firms. Therefore, a very narrow band of users are represented. Forum members are allowed to submit and vote on CADD Standard items. In order to join the forum, you must register online at [\\www.nibs.org\](http://www.nibs.org). Anyone interested in having input to the Standard is encouraged to register.

7. Utilities/Tools:

Fasteners: The STFAC will look into hiring a contractor to write a Faster Utility that draws nuts, bolts and washers on-the-fly. The utility would be similar to that available from HTB Technologies that works with MicroStation J. HTB is no longer supporting this utility.

Welding Symbols: Many people are not using the utility currently available for drawing welding symbols on-the-fly because the symbols are too big. We need to look into getting this fixed.

Steel: There are errors in the STEEL.ma utility used in MicroStation. Please let Lori know when you discover specific errors so that we can get them fixed.

NetSpex: Center is looking at making a Standard for using Metrics with NetSpex. The CADD Center would/will create a deployable package so that NetSpex can be checked out and loaded on a laptop. The software needs to be customized (add tools) in order to make it more productive.

8. MicroStation V8 Lessons Learned: The following are the lessons learned shared at the meeting:

- All reference file levels turn on when translating ACAD files.
- When converting drawings from V7 (V7 refers to versions of MicroStation older than V8), fence the whole V7 drawing, hit fence freeze, and then convert to V8. This will prevent weird things from happening (large circles, etc.)
- If you try to use a V7 drawing in V8 (using V7 mode) you will not be able to view levels that were turned off in the V7 file.
- SAJ has found it easier to reference an old drawing into a V8 file and then copy the elements than it is to convert the drawing.
- Run File Fixer (Axiom) prior to converting files. If a corruption exists within the V7 file, it could cause problems in translation.

- If you convert a V8 file that is already a V8 file, it will corrupt the file (it will go to a files size of zero).

9. Facility Support: Military Bases (one of our largest customers) are primarily interested in Facility Support. We need to come up with a strategy to meet our customers' needs. We need to look at how are CADD Standards affect them. It was suggested that a task force, made up of representatives of the various FAC groups, be established to sit down with the IMA (Tor Brunzo, et al?) so that we can determine what their needs are. The following are some questions/issues we need to look into:

- What levels/layers are important to Facilities Management?
- What do they want to be able to do with are files?
- They want them to be GIS compatible.
- Are facilities are primarily interested in model files? Sheet files are where the text is located for most drawing types (architectural, mechanical, electrical, structural)
- We may need to sell them on the importance of the Standard. The CADD file should be the product, not the paper plots. That is why it is important to standardize.
- Consistency is key. Customers should be able to receive a consistent product.

10. AEC Workspace: The CADD Center will not be developing future enhancements for the AEC Workspace. They will only fix bugs in the program. Part of the intent behind developing the Workspace was to provide a catalyst so that 3rd party vendors would develop their own products. Maintaining the Workspace is very time intensive and expensive. Now that products like NetSpex and SiteMenu are available, maintaining our own system is not necessary.

11. Corpwide Software Purchases: We need to use the same tools corporately. If we purchase them as the "Corps" rather than districts we will have more influence getting the vendors to make changes for us. In addition it will be cheaper because the vendors won't be charging each district for customized products.